2-2 Linear Equations
2-3 Slope

Linear equation--variables cannot be multiplied together or appear in the denominator; exponent should be one

Graph-line

Standard Form--Ax + By = C, where
$A \geq 0$ and A and B are both not zero
$A, B, C \in Z$ whose GCF is 1

Slope-intercept form y = mx + b

m → slope
b → y-intercept

Put the following in standard form:

ex 1:
y = 3x - 9

$3x - y = 9$

ex 2:
$\frac{-2}{3}x = 2y - 1$

$3\left(\frac{2}{3}x + 2y = 1\right)$

$2x + 6y = 3$

ex3:
8x - 6y + 4 = 0

$8x - 6y = -4$

$4x - 3y = -2$

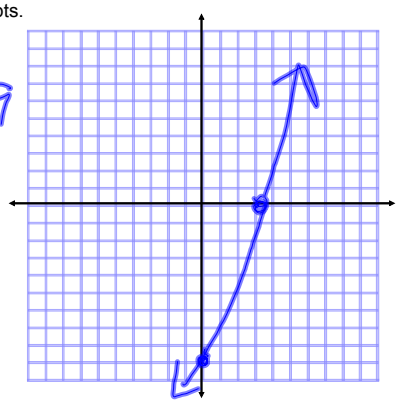
Graph using intercepts.

ex 1

$3x - y = 9$

$(0, -9)$

$(3, 0)$



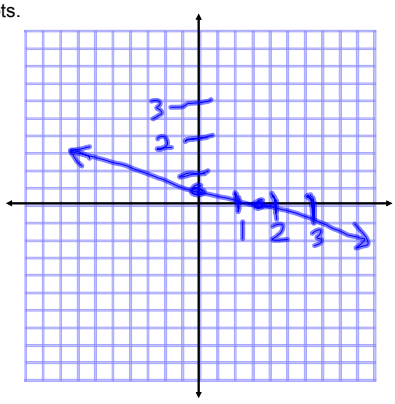
Graph using intercepts.

ex 2

$2x+6y=3$

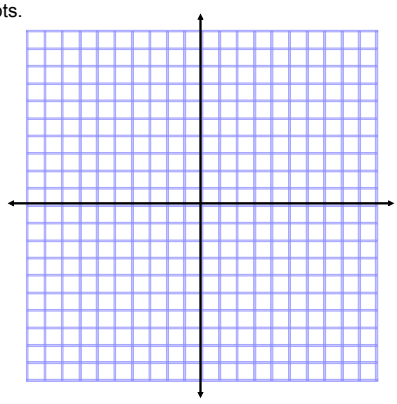
$(0, \frac{1}{2})$

$(\frac{3}{2}, 0)$



Graph using intercepts.

ex 3



How else do you graph?

Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \frac{\Delta y}{\Delta x} \quad \frac{\text{rise}}{\text{run}}$$

Calculate the slope for:
(1,3) and (-2,-3)

$$m = \frac{-3-3}{-2-1} = \frac{-6}{-3} = 2$$

Special slopes:

Horizontal Line $m = 0$

Zero

Vertical Line

No slope or undefined

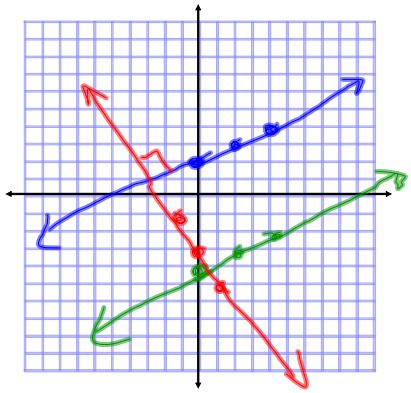
Graphing:

$y = mx + b$

$y = \frac{1}{2}x + 2$ $m = \frac{1}{2}$ $(0, 2)$

$y = \frac{1}{2}x - 4$ $m = \frac{1}{2}$ $(0, -4)$

$y = -2x - 3$ $m = -2$ $(0, -3)$



Parallel lines have the same slope

Perpendicular lines

$m = \frac{1}{2}$ Slopes are opposite reciprocals

$m = -2$

Classwork Day

p66
27, 33, 37, 43-49odd

p71-72
10, 11, 17, 19, 22, 23

HW
p66
27-37odd, 43-49odd

p71-72
9-11, 15-25odd